2.11
Solving Rational & Radical Equations in One Variable

Name _____ Date _____ Period _____

Solve the equation algebraically. State the restrictions on 1-18 and identify any extraneous solutions. Show work!

1. $\frac{x-2}{3}+\frac{x+5}{3}=\frac{1}{3}$

2. $x+\frac{4x}{x-3}=\frac{12}{x-3}$

3. $x+\frac{12}{x}=7$

4. $\frac{3x}{x+5}+\frac{1}{x-2}=\frac{7}{x^2+3x-10}$

5. $\frac{3}{x+2}+\frac{6}{x^2+2x}=\frac{3-x}{x}$

6. $\frac{x^2-2x+1}{x+5}=0$

Solve each radical equation. State the restrictions on #1-18. Show work!

7. $\sqrt{4x+1}-5=0$

8. $\sqrt{2x+3}-7=0$

9. $5-2\sqrt{x}=3$

10. $\sqrt[3]{x}+3=2$

11. $2\sqrt[5]{31x+25}-7=3$

12. $\sqrt{x^2+3}=x+1$

13. $\sqrt{5x+4}-\sqrt{x}=4$

14. $2\left(x+3\right)^{\frac{2}{3}}=8$

15. $\left(x+1\right)^{\frac{3}{2}}-2=25$

16. $\left(x+3\right)^{\frac{1}{2}}-1=x$

17. $\left(2x\right)^{\frac{1}{2}}=\left(x+5\right)^{\frac{1}{2}}$

18. $(x-4)^{\frac{2}{3}}=5$

Review Exercises
Simplify each rational expression. Hint: Factor

19. $\frac{x^2-4}{x^3+8}$

20. $\frac{2x^2}{8y}\cdot\frac{2y^2}{16x^3}$

21. $\frac{4z^2}{8y}\div\frac{2z^4}{16y^3}$

22. $\frac{4z^2}{8y}+\frac{3z^2y^2+1}{16y^3}$

23. $\frac{3}{x^2+x-6}-\frac{x}{x+3}$